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10/005,597	11/07/2001	Benjamin J. Levitt	BVOC022A	8480

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EXAMINER

ALBERTALLI, BRIAN LOUIS

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/005,597	Applicant(s) LEVITT ET AL.	
	Examiner Brian L Albertalli	Art Unit 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-20 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-20 and 23-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The applicant's arguments with respect to the claim of priority from Application number 09/894,164 for purposes of correcting inventorship are persuasive. Accordingly, the rejections to claims 1-22 under 35 U.S.C. 102(g), 35 U.S.C. 102(e), and 35 U.S.C. 102(f) are withdrawn.
2. Applicant's arguments with respect to claims 1, 19, 20, and 23 have been considered but are moot in view of the new ground(s) of rejection.

Specification

3. The amendments to the specification overcome the objections of the previous office action. The objections to the specification are withdrawn.

Claim Rejections - 35 USC § 101

4. The amendments to claims 1, 19, 20, and 23 overcome the rejections under 35 USC 101 made in the previous office action. The rejections under 35 USC 101 are withdrawn.

Claim Rejections - 35 USC § 112

5. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 has been amended to read, in part, "wherein the plurality of grammar expressions include every possible combination of the first and second matches". This limitation of the claim is directed to generating every permutation of a set of first matches (an example of three first matches is given in the specification on page 23, lines 14-15) and a set of second matches (two second matches on page 23, lines 17-18). "Every possible combination" of a set of 3 first matches and a set of 2 second matches results in 6 combinations. The examiner is at a loss to understand how, as cited in the specification, "every possible combination" of a set of 3 first matches and a set of 2 second matches results in 9 combinations. Anything more than 6 combinations would inherently have to be a repeated combination, and thus goes beyond "every possible combination".

Regarding claim 2, then, to claim "discarding duplicate grammar expressions" is indefinite, because "every possible combination" of a first match and a second match is limited to every permutation of the first match and second match without any repeated combinations.

For the purposes of examination, the step of "discarding duplicate grammar expressions" has been interpreted herein as equivalent to any combinations of a first match and a second match that do not include duplicate grammar expressions.

Claim Rejections - 35 USC § 102

6. As discussed in the Response to Arguments above, the rejections under 35 U.S.C. 102(g), 35 U.S.C. 102(e), and 35 U.S.C. 102(f) are withdrawn.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 5, 10-15, 23, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al. (U.S. Patent 6,405,172), in view of Smith et al. (U.S. Patent 6,408,271).

In regard to claims 1, 19, and 20, Baker et al. disclose a method, computer program product, and system for recognizing utterances, comprising:

(a) receiving an utterance including at least two components (Fig. 1, operator 31 speaks part of a street number and part of a street name from an address 35, column 2, lines 45-49);

(b) identifying matches between each of the components of the utterance and grammars (each segment is translated by voice engine 43 according to predetermined grammars, column 2, lines 53-62);

(c) combining each instance of a first match of a first one of a first one of the components with each instance of a second match of a second one of the components to generate a plurality of grammar expressions (regular expression creation module 47 forms an expression that describes all possible matches for the street number and an expression for all the possible street names, which is

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passed to inexact string matching module 49, column 3, lines 14-23; the expressions are combined into a query by string matching module 49 and used to search address directory 61 for every record that has street numbers and names that match the regular expressions provided by module 47, column 3, lines 25-32);

(d) recognizing the received utterance utilizing the grammar expressions (the recognized expressions are combined into a query by string matching module 49 and used to search address directory 61 for every record that has street numbers and names that match the regular expressions provided by module 47, column 3, lines 25-32):

wherein the plurality of grammar expressions include every possible combination of the first and second matches (the query used by string matching look-up module 49 returns all records that have street numbers and names corresponding with all possible matches of street numbers and names determined by regular expression creation module 47, column 3, lines 14-23 and lines 25-32);

wherein a score (probability) is assigned to each of the grammar expressions (the record set is presented in descending order of probability, column 3, lines 37-42);

wherein the assigned score is comprised of component scores associated with the first and second components (each segment is associated with a confidence level, column 2, lines 53-53; as well as each expanded set, column 3,

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lines 7-9; which are used to determine the order of matches presented to the user, column 3, lines 40-43).

Baker et al. do not specifically disclose that the assigned score is a product of the component scores (multiplying the component scores).

Smith et al. disclose a method, computer program product, and system for generating probable phrasal (expression) models for use in a speech recognizer (column 1, lines 7-10). The method generates a score (recognition probability) for each component of a phrase (word probability independent of surrounding words), then multiplies the score (probability) for each word to generate a phrasal (expression) score (column 8, lines 19-20 and column 8, line 29 to column 9, line 15).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Baker et al. to assign a score to the grammar expressions using a product of component scores associated with the first and second components, since this provides a suitable score for a grammar expressions (phrase) and computing the product between two word scores is a simple operation that can be calculated extremely fast.

In regard to claim 2, Baker et al. disclose discarding duplicate grammar expressions (the query used by string matching look-up module 49 returns all records that have street numbers and names corresponding with all possible matches of street numbers and names determined by regular expression creation module 47 without repeating, column 3, lines 14-23 and lines 25-32).

In regard to claim 5, Baker et al. disclose a score-based priority of the grammar expressions is stored in a list (the record set is a ordered list of descending probability, column 3, lines 40-43).

In regard to claim 10, Baker et al. disclose the utterance is representative of at least a portion of an address (column 2, lines 45-49).

In regard to claim 11, Baker et al. disclose comparing the grammar expressions with a database of addresses (address directory 61, column 3, lines 25-32).

In regard to claim 12, Baker et al. disclose the grammar expressions are filtered based on the comparison using the database of addresses (only matching records are returned, column 3, lines 25-32 and lines 38-40).

In regard to claim 13, Baker et al. disclose outputting the grammar expressions based on the comparison (column 3, lines 38-40).

In regard to claim 14, Baker et al. disclose the process is applied to multiple fields of an address (column 6, lines 16-20). City and state are components of an address.

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In regard to claim 15, Baker et al. disclose the components of the utterance include a street name and an address number of the address (column 2, lines 45-49).

In regard to claim 23, Baker et al. disclose a method for recognizing utterances, comprising:

(a) receiving an utterance including at least two components wherein the utterance is indicative of content (Fig. 1, operator 31 speaks part of a street number and part of a street name from an address 35, column 2, lines 45-49);

(b) identifying matches between each of the components of the utterance and grammars (each segment is translated by voice engine 43 according to predetermined grammars, column 2, lines 53-62);

(c) combining each instance of a first match of a first one of a first one of the components with each instance of a second match of a second one of the components to generate a plurality of grammar expressions (regular expression creation module 47 forms an expression that describes all possible matches for the street number and an expression for all the possible street names, which is passed to inexact string matching module 49, column 3, lines 14-23; the expressions are combined into a query by string matching module 49 and used to search address directory 61 for every record that has street numbers and names that match the regular expressions provided by module 47, column 3, lines 25-32);

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(d) scoring the grammar expressions (the record set is presented in descending order of probability, column 3, lines 37-42);

(e) recognizing the received utterance utilizing the grammar expressions (the recognized expressions are combined into a query by string matching module 49 column 3, lines 25-32);

(f) comparing the results of operation (e) with a database of the content (the recognized expressions are used to search address directory 61 for every record that has street numbers and names that match the regular expressions provided by module 47, column 3, lines 25-32); and

(g) discarding the results based on the score and the comparison (only matching records are returned, column 3, lines 25-32 and lines 38-40);

wherein the plurality of grammar expressions include every possible combination of the first and second matches (the query used by string matching look-up module 49 returns all records that have street numbers and names corresponding with all possible matches of street numbers and names determined by regular expression creation module 47, column 3, lines 14-23 and lines 25-32);

wherein a score (probability) is assigned to each of the grammar expressions (the record set is presented in descending order of probability, column 3, lines 37-42);

wherein the assigned score is comprised of component scores associated with the first and second components (each segment is associated with a confidence level, column 2, lines 53-53; as well as each expanded set, column 3,

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lines 7-9; which are used to determine the order of matches presented to the user, column 3, lines 40-43).

Baker et al. do not specifically disclose that the assigned score is a product of the component scores (multiplying the component scores).

Smith et al. disclose a method, computer program product, and system for generating probable phrasal (expression) models for use in a speech recognizer (column 1, lines 7-10). The method generates a score (recognition probability) for each component of a phrase (word probability independent of surrounding words), then multiplies the score (probability) for each word to generate a phrasal (expression) score (column 8, lines 19-20 and column 8, line 29 to column 9, line 15).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Baker et al. to assign a score to the grammar expressions using a product of component scores associated with the first and second components, since this provides a suitable score for a grammar expressions (phrase) and computing the product between two word scores is a simple operation that can be calculated extremely fast.

In regard to claim 26, Baker et al. disclose potential recognition grammars are produced for each of the first and second components (character set expansion module 45 identifies similar sounding characters, which are included in the regular expressions, column 3, lines 1-7 and lines 14-19).

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In regard to claim 27, Baker et al. disclose the potential recognition grammars of the first and second components are respectively combined in every possible combination (the query used by string matching look-up module 49 returns all records that have street numbers and names corresponding with all possible matches of street numbers and names determined by regular expression creation module 47, column 3, lines 14-23 and lines 25-32).

9. Claims 4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al., in view of Smith et al., and further in view of Sasaki et al. (U.S. Patent 6,556,970).

In regard to claims 4 and 6, Baker et al. disclose an audio subsystem (Fig. 3, 248) that provides responses to a user through a headset (column 5, lines 58-61) and further disclose that the grammar expressions are presented to the user in a priority based on score (column 3, lines 40-43).

Baker et al. do not disclose that the grammar expressions are “played back” to the user (audibly).

Sasaki et al. disclose a method of presenting speech recognition results to a user that audibly plays back the results in an order based on score for the user (column 8, lines 46-48).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Baker et al. and Smith et al. to play back the grammar expressions so the user could confirm recognition results audibly without the need for a visual monitor.

In regard to claim 7, Baker et al. disclose the user selects the correct recognition result, which is equivalent to rejecting the remaining results (column 3, lines 45-46).

Baker et al. and Smith et al. not disclose rejecting played back grammar expressions.

Sasaki et al. disclose allowing the user to reject played back grammar expressions (talked back results can be denied by the user, column 8, lines 55-58).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Baker et al. and Smith et al. to allow the user to reject played back grammar expressions, so recognition results that were incorrect would not be used.

In regard to claim 8, Baker et al. and Smith et al. disclose the user selects the correct recognition result, which implicitly discards the remaining grammar expressions (previously rejected grammar expressions).

In regard to claim 9, Baker et al. disclose the rejected grammar expressions are stored in a list (the record set is a ordered list of descending probability and includes all the candidates, whether selected or not, column 3, lines 40-43).

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10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al., in view of Smith et al., and further in view of Junqua (U.S. Patent 6,598,018).

Baker et al. disclose the method is used to determine a correct, legal address from a database of addresses (column 6, lines 16-20).

Baker et al. and Smith et al. do not disclose the components of an utterance include two street names describing an intersection.

Junqua discloses a method in which a user utters an intersection of two streets to describe a location (column 4, lines 25-30).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Baker et al. and Smith et al. to allow the user to utter two street names describing an intersection, so that the user could extract the correct address from the database, even if the exact address was not known.

11. Claims 17, 18, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker et al., in view of Smith et al., and further in view of Ittycheriah et al. (U.S. Patent 5,937,383).

In regard to claims 17, 18, and 25, Baker et al. and Smith et al. do not disclose caching the results of the comparison.

Ittycheriah et al. disclose a method for speech recognition that recognizes input speech against a database (language database) and caches the results of the comparison (column 3, lines 60-64 and column 4, lines 25-29). The cached

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results are then used for recognizing subsequent utterances, wherein the cache is first checked (column 4, lines 33-53).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Baker et al. and Smith et al. to include a cache, in order quickly accept or reject commands and substantially enhance the performance, as taught by Ittycheriah et al. (column 2, lines 58-63 and column 3, lines 18-21).

In regard to claim 24, Baker et al., Smith et al. and Ittycheriah et al. do not specifically disclose the cache results expire at the end of a session from which the results originated.

Official notice is taken that it is notoriously well known and recognized in the art to periodically remove items stored in a cache by allowing them to expire, in order to reduce the amount of storage needed for the cache, and to ensure that the items in the cache are up to date.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Baker et al., Smith et al., and Ittycheriah et al. to allow the cached results to expire at the end of a session, in order to reduce the amount of storage needed for the cache, and to ensure that the results in the cache were up to date.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Baker et al. (U.S. Patent 4,783,803) and Ganong et al. (U.S. Patent 5,280,563) disclose additional methods that use the product of component scores of individual words to determine a score for a phrase.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

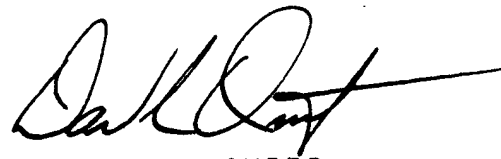
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLA 4/18/05



DAVID L. OMETZ
PRIMARY EXAMINER